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Date: June 1, 2004

From: William E. Player (attorney of record)

To: Examiner Otilia GABOR

Fax No. 571-273-2425
Page 1 of 4

In re the Application of	Kaupo PALO
Application No.	09/869,581
Filed	October 22, 2001
Group Art Unit	2878
Examiner	Otilia GABOR
Attorney Docket No.	P63544US1

MESSAGE

Attached are the claims pages from the Amendment filed May 14, 2004.

Thank you.

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Attorney Docket No. P63544US1
Application No. 09/869,581

Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claims 1-22 (canceled)

23 (new). A method for characterizing fluorescent molecules or other particles in samples comprising the steps of

a) monitoring fluctuating intensity of fluorescence emitted by the molecules or other particles in at least one measurement volume of a non-uniform spatial brightness profile by measuring numbers of photon counts in primary time intervals by a single or more photon detectors,

b) determining at least one distribution function of numbers of photon counts, $P(\mathbf{n})$, from the measured numbers of photon counts,

c) determining physical quantities characteristic to said particles by fitting the experimentally determined distribution function of numbers of photon counts, wherein the fitting involves calculation of a theoretical distribution function of the number of photon counts $P(\mathbf{n})$ through its generating function, defined as

$$G(\vec{\xi}) = \sum_{n} \vec{\xi}^{\,\mathbf{n}} P(\mathbf{n})$$

wherein in step c) when calculating the theoretical distribution $P(\mathbf{n})$, the spatial brightness profile is modeled by the expression:

$$\frac{dV}{dx} = A_0 x(1 + a_1 x + a_2 x^2)$$

where dV denotes a volume element, x denotes logarithm of the relative spatial brightness, A_0 is a constant selecting the unit of volume, and a_1 and a_2 are empirically estimated parameters.

24 (new). A method for characterizing fluorescent molecules or other particles in samples comprising the steps of

a) monitoring fluctuating intensity of fluorescence emitted by the molecules or other particles in at least one measurement volume of a non-uniform spatial brightness profile by measuring numbers of photon counts in primary time intervals by a single or more photon detectors,

b) determining at least one distribution function of numbers of photon counts, $P(\mathbf{n})$, from the measured numbers of photon counts,

c) determining physical quantities characteristic to said particles by fitting the experimentally determined distribution function of numbers of photon counts,

wherein the fitting procedure involves calculation of a theoretical distribution function of the number of photon counts $P(\mathbf{n})$ through its generating function, defined as

$$G(\vec{\xi}) = \sum_n \vec{\xi}^{\,\mathbf{n}} P(\mathbf{n})$$

wherein in step c) when calculating the theoretical distribution $P(\mathbf{n})$, the spatial brightness profile is modeled by the expression

$$\frac{dV}{dx} = A_0 x^{a_3}(1 + a_1 x + a_2 x^2)$$

where dV denotes a volume element, x denotes logarithm of the relative spatial brightness, A_0 is a constant selecting the unit of volume, and a_1, a_2 and a_3 are empirically estimated parameters.